**Economics Notes – Economic Indicators**

**Part A – Prices, Inflation and Deflation**

Definition of inflation

A sustained increase in general price level. When there is inflation, price has increased over the previous year and is measured by the consumer price index or retail price index.

Definition of deflation

A sustained decrease in general price level. When there is deflation, price has fallen over the previous year. Real inflation rate is negative.

Types of Inflation

1. **Demand-Pull Inflation**

It occurs when there is an increase in the aggregate demand, which will contribute to an excess demand condition and thus a rise in the general price level.

1. **Cost-Push Inflation**

It occurs when there is a rise in cost of production, such as the increase in cost of raw materials or labour cost. This leads a fall in the aggregate supply that will lead to an excess demand condition, contributing to increase in price level.

1. **Imported Inflation**

The rise in global price of certain essential goods or global boom will cause the price of imports to rise which will lead to a rise in cost of living and cost of production, contributing to cost-push inflation. For example, rise in the price of oil.

Impacts of Inflation – Beneficial Impacts

* **Promotes investment, production and national income**
* When inflation rate is low, production cost lags behind product prices, enabling firms to reap higher profits
* Also, higher price level encourages entrepreneurs to invest more due to expectations of higher profit margins

Impacts of Inflation – Detrimental Impacts

* **Unequal redistribution of income**
* When there is inflation, real value of wealth and purchasing power are distorted
* Real income falls as fixed income earners can purchase fewer goods and services than before
* Appreciation of assets will raise the wealth of the higher income group, while the increased price of resources will lower the real income of the poor
* **Discourage willingness to save**
* Future value of money is lower
* Undermine the ability to save as purchasing power has decreased
* Consequently, lower savings will reduce the source of funds for investment, thus hindering economic growth
* **Increase cost of living and worsen standard of living**
* Persistent increase in prices will lead to an increase in cost of living
* If household income is unchanged, given an increase in prices, living standards will be worsened, measured in term of the fall in real per capita income
* **Misallocation of Resources**
* Inflation promotes speculative activities, which will distort production and consumption levels, thus causing greater inefficient allocation of resources
* **Loss of international competitiveness**
* Inflation will raise the cost of production and increase the price of goods
* This will cause in an increase in price of exports and a relative fall in price of imports
* Consequently, the rising export prices will decrease export demand, undermining the country’s international competitiveness
* In Singapore, inflation affects trade more extensively, given its extensive reliance on exports to sustain economic growth
* **Balance of trade and balance of payment deficit**
* Balance of Trade Deficit
* The increase in price of exports will lead to a fall in net exports, resulting in a BOT deficit
* Balance of Payment Deficit
* Without government intervention, the persistent BOT deficit will lead to a fall in foreign exchange rate, thus causing balance of payment deficit
* **Depreciation of Exchange Rate**
* Lower export demand will lead to a decrease in demand for local currency
* Greater import demand will lead to an increase in supply of local currency
* Consequently, there will be a fall in the exchange rate, causing capital outflow that undermines the financial stability of the economy
* **Higher Unemployment Rate**
* Inflation contributes to higher cost of production, which may lead to the closure of firms
* Closure of firms will lead to higher unemployment rate

Solutions to Inflation

1. **Contractionary Monetary Policy**

* The central bank of the country will reduce money supply by selling treasury bonds and raising interest rates of borrowing.
* Higher interest rates will push consumers to save and consume less since the opportunity cost of consumption has increased and the cost of credit consumption is higher.
* As for investment, it will fall as there is increase in cost of borrowing, leading to reduction in profitability.
* Consequently, AD will decrease and through reverse multiplying process, price will decrease and inflation is curbed, since the excess demand condition is eradicated.

Evaluation

* Central Bank cannot control the money supply due to the presence of foreign banks / liberalisation of the banking system
* Although price level stabilizes, there is no growth in the economy. In more extreme cases, the economy will shrink.
* Increases in interest rates will attract hot money inflow from other countries and this will raise the local money supply which will lower the interest rate, making it difficult for the government to conduct contractionary monetary policy.

1. **Contractionary Fiscal Policy**

* Contractionary Fiscal Policy decreases government expenditure (G) and raises tax to curb inflation.
* Reducing G would mean that the government stops spending on public facilities and welfare so that total money supply in the economy is reduced.
* Increase in taxes will lower the disposable income of the consumers, and reduce profitability after tax and thus decreases government expenditure, consumption and investment

Evaluation

* Raising tax is politically unfavourable as it may cause social unrest.
* Time lag for policy implementation
* Reduction in essential infrastructure development for the public is not beneficial (↓SOL, lower productivity for the private and public sector)
* Cannot control imported and cost-push inflation

1. **Supply-Side Policies**

* Supply-side policies can also focus on the efficiency of production which will enable the industries to lower the cost condition, so as to dampen cost-push inflation.
* Supply-side policies can also improve the mobility of resources so as to solve the structural rigidities which will lower cost of production.

1. **Exchange Rate Management Policy**

* The Central Bank will intervene into foreign exchange rate market to raise the exchange rate by direct intervention where the central bank increases the demand for local dollars through buying of local dollars and selling forex
* Alternatively, some economies may conduct exchange rate monetary policy by raising interest rate to attract more capital inflow to induce an increase in demand for local dollar which will also appreciate the exchange rate. This will help to curb imported inflation.
* ↓Price of resources in local $ 🡪 ↓cost of imports 🡪↓cost of production and cost of living
* ↓COL – slow down wage increment 🡪 sustain value of wage for foreign workers – prevent price-wage spiral

Evaluation

* Strong ER – makes import cheaper reduce cost of raw material.
* Exports would be more expensive in terms of foreign currency 🡪 unemployment in export industries (↓production)
* Government needs to set aside funds for intervention in FOREX market – raise the opportunity cost of resource🡪less economic development
* Exchange rate management by raising interest rate is short-lived, since the speculator will sell local $ when it appreciates, therefore increasing the supply of local $ which will lower exchange rate

Why is it important for the government to keep inflation rate low?

(The beneficial impacts of keeping inflation rate low)

## Internal aspect

* Mimimise unequal distribution of income
* Price of goods for resources is not lowered which will sustain the purchasing power of the lower income group while the price of assets will not rise excessively to raise the wealth of the rich – income and wealth disparity will not widen – social dissatisfaction will be minimised – social stability is promoted
* Prevents rise in cost of living and cost of production.
* Maintains purchasing power and ability to save.
* Induce investment, production and employment.
* Prevent misallocation of resources
* Promote social stability and minimise social dissatisfaction

## External aspect

* + - Maintain international competitiveness due to cost competitiveness
    - Prevent the occurrence of balance of trade deficit.
    - Prevent fluctuation of exchange rate (depreciation).
    - Maintain price stability and exchange rate stability, which will boost investor and consumer confidence. Hence, promoting consumption and investments, which will raise economic growth

Consumer Price Index (CPI)

The CPI measures the relative changes in value of money as a percentage variation in the general price level over a period of time. Price changes are expressed as an index number to show how it differs from a reference/base year.

Steps in the calculation of CPI

1. Choose a basket of goods that is representative of the consumers’ consumption.
2. Derive the base year and current year price level (should be a year without recession and boom)
3. Provide weightage according to the consumer consumption composition

**Part B – Unemployment**

Definition of unemployment

It refers to all individuals who are able and willing to work but not offered a job.

Definition of unemployment rate

Ratio of unemployed people to the labour force (active working population)

Types of Unemployment

1. **Demand-Deficient Unemployment**
   * + Demand-deficient unemployment occurs as a result of a fall in demand for labour caused by an economic recession under a condition of wage inflexibility.
     + Also known as **cyclical unemployment**, which is contributed by a fall in export demand and foreign direct investment (FDI) which is affected by global trade and business cycle
2. **Structural Unemployment**

Structural unemployment is caused by the changing pattern of demand and/or supply in the economy as a result of sectoral adjustment, technological advancement, imperfect labour market and seasonal adjustment of production period.

1. **Frictional Unemployment**

It occurs as result of poor information in the labour market which makes it difficult for workers to find employment and thus creates a time lag before workers find suitable jobs.

1. **Technological Unemployment**

Technological unemployment occurs as a result of a change in production techniques, usually with the introduction of new technology.

* + - ↑ Productivity 🡪↓dd for labour (displacement of workers due to use of capital) 🡪skill incompatibility (new technology)

1. **Regional Unemployment**

* This form of unemployment occurs when a certain region experiences full employment but another region has unemployment.
* This is due to occupational and geographical immobility between regions of a country which occurs as certain regions are no longer able to attract investment to provide employment due to poor investment environment and higher wage rate.

1. **Seasonal Unemployment**

It is caused by relatively regular and anticipated decline in business activity during a certain time period of the year.

Impacts of Unemployment

### Rise in opportunity of idle resources seen in term of loss of production and the need for more funding to finance the introduction of unemployment benefit

### Increase in cost of government expenditure

* Unemployment benefits have to be given out and there is a decrease in tax revenue since taxable income from employment and business activities will be reduced.
* This will create budget strain as government expenditure will be greater than tax revenue.
* National income will be lowered which will lead to a reduction in real per capita income.
* Also, lower tax revenue will mean that there are lesser sources of tax revenue to finance public project to provide more public and merit goods to make life more comfortable, and improve qualitative aspect of SOL.
* Unemployment will also create social instability as illegal activities and crime rate will rise.
* Unemployment will also lead to unequal distribution of income as the excess labour supply will drive wage rate downwards, lowering the income of the workers and this will lead to social dissatisfaction.
* Unemployment will undermine the economy’s production capacity as resources are under-utilized.
* Actual economic growth measured in term of growth of GDP will decrease.
* Lesser tax revenue will mean that the economy is unable to have more resources to generate potential growth as the government is unable to finance its infrastructural and institutional development to induce economic development for future growth.

### Unemployment is also an indication of the loss of competitiveness as the economy may cut production and reduce employment as it cannot sustain their comparative advantage in export demand and inflow of investment into the economy.

### Why government needs to maintain low rate of unemployment?

### reduce opportunity cost of idle resources

* present budget deficit/strain - ↑UN+ benefit/↓tax
* increase production capacity
* maintain a high SOL (more people have income to spend/tight labour market will lead to rise in wage rate)
* prevent unequal distribution of income – to maintain social stability
* raise tax revenue to provide financing for infrastructural and institutional development
* ascertain competitiveness

Solutions to Unemployment

1. **Expansionary Monetary Policy**

* In an expansionary monetary policy, the central bank will increase the money supply so as to lower interest rate which will lead to lower cost of borrowing.
* This will induce higher level of consumption while the cost of borrowing will make investment more profitable, leading to higher level of investment.
* Consequently, there will be a rise in aggregate demand which will induce rise in national income and production.
* This will lead to higher level for employment in term of demand for labour resources.

**Evaluation – Advantages**

* Induce more permanent source of employment
* Induce more efficient and innovate production
* Provide a greater variety of employment for investment in new industries

**Evaluation – Disadvantages**

* increase in local investment may not be able to compensate the loss in production due to fall in external demand

1. **Expansionary Fiscal Policy**

* Increase the aggregate demand by raising government expenditure and lowering taxation which will contribute to the rise in the national income that will raise the production level, leading to rise in employment.
* Through the building of infrastructural development and provision of public services, production of goods and services will lead to more employment
* Lowering of taxation will induce investment which will lead to more production and thus, solving demand-deficient unemployment.

**Evaluation – Advantages**

* Direct impact on production and thus, can raise employment directly through the provision of more public services and the development of infrastructure
* Have a dimensional effect – can raise the income of lower income group and improve standard of living / it will also raise the efficiency of these industries which can be achieved through government spending on infrastructural and manpower development

**Evaluation – Disadvantages**

* The provision of government expenditure will increase government debt and taxation as it requires financing
* Time lag
* Excessive infrastructural development may lead to the creation of ‘white elephants’ (redundant facilities that are rarely utilized by the public)

1. **Supply-side Fiscal Policy (To reduce frictional unemployment)**

* Establish employment agencies to facilitate information about the labour market – E.g. Work Development Agency (WDA)
* Provide better job information through government centres, private employment agencies or by newspapers.
* Reduce the level of unemployment benefits to encourage the unemployed to find a job

**Evaluation**

* Costly to set up and run such agencies.
* Requires extensive tax revenue to fund policy
* Costly to advertise
* Clear definitions of jobs needed and most times not available, which leads to frustrations and distrust

1. **Supply-side Policy (To reduce structural unemployment)**

* To solve structural unemployment, the government will introduce manpower development like Work Skill Qualification (WSQ) or use Skill Development Fund to help workers to upgrade their skills to equip them with new skills to work in new industries or sustain their employability
* New industries are also developed with infrastructural development to provide more employment opportunities to help workers who are retrenched as there will be direct increase in production capacity.
* Infrastructural development will also raise the physical mobility of workers which will solve regional unemployment due to structural rigidities.

**Evaluation**

* Workers are not receptive to retraining and upgrading.
* Employers may not want to spend money on retraining/upgrading the skills of their workers as workers may job-hop after training.   
  (difficulty in retaining training benefits)
* High cost in adjusting the structure of the economy (increase in taxation – politically unfavourable/may increase government debt)
* Inherent constraint- limited resources
* Time lag
* Saturation of infrastructural development; because of maturity of economic development

**Part C – Output & Economic Growth**

Definition of economic growth

Economic growth refers to the growth of the production, seen in terms of the actual or potential production capacity.

Actual Economic Growth

* Actual economic growth refers to the actualization of resources into monetized products and services, measured in term of the percentage change in real GDP.
* Actual economic growth is the percentage annual increase in national output actually produced that is the percentage change in the Gross National Product/Gross Domestic Product over the previous year.

Potential Economic Growth

Potential growth refers to the expansion of the availability of resources for production, measured in term of rightward shift of the long run supply curve and the outward shift of the production possibility curve (PPC).

Nominal Gross Domestic Product

The monetary value of all final goods and services produced **within a country** within a given period of time, expressed in current price level before corrected for inflation.

Real Gross Domestic Product

* + - The real value of all final goods and services produced **within a country** within a given period of time, expressed in base year price level after it is corrected for inflation.
    - Formula:

Real GDP = Nominal GDP x

Base Year Price Index

Current Year Price Index

Recession

A recession refers to the fall in real GDP for two consecutive quarters

Human Development Index

* HDI is a form of measurement of the standard of living in a country. It is measured in terms of the progress of well-being of individuals.
* The indicators that are used include infant mortality rate, life expectancy at birth, real per capita income (GDP per head) and literacy rate.

Real per capita income

* Real income of an individual in an ecnomy
* Formula:

Real per capita income =

Real GDP/GNP

Population figure

Factors Contributing to Economic Growth

1. **Physical Capital**
   * + Physical capital refers to the tangible investment goods like plant, equipment, machinery and building.
     + Physical capital accumulation increases the productivity of labour. Machines allow one worker to raise productivity and allow more efficient use of the limited natural resources such as land and raw materials.
2. **Labour Force**

* The labour force contributes to the growth of national income
* The quantity of labour force can be increased through the increase in the working population, labour participation rate or import of more foreign workers
* Training and development of the workers and import of foreign talents raise the productivity of the workers, improving the quality of labour force.

1. **Land and Raw Materials**
   * + Availability of land space and raw materials determines the resource capacity, which affects the cost of production.
     + Better management and utilization of resources will minimise the cost of resources which will determine the cost of production.

* E.g. Constructing taller buildings – enable greater utilisation of land capacity
  + - Higher cost of production will undermine the economy from attaining a higher level of national income and thus lowering actual economic growth
    - The shortage in the supply of resources will also reduce the resources capacity and thus undermines potential growth and this is usually overcome by the import of resources as seen in the case of Singapore

1. **Entrepreneurship**

* Entrepreneurs’ skills are essential in the organization of production.
* The effectiveness and efficiency of the entrepreneur will determine the productivity of the production and distribution process which will affect the production capacity of the economy, in actual and potential growth.

1. **Technological Advancement** 
   * + Technological advancement improves the efficiency of production, thus raising output and economic growth
     + Technological improvement includes the following:

* Innovation is the application of current and new knowledge in the production of goods and services
* For instance, new methods of production of automobiles that are more cost-saving would lower the cost of production and increase the output per worker
* Technological advancement also increases the quality of production and competitive edge, which will raise the efficiency of production contributing to lower cost of production

1. **Other Factors**

* Favourable cultural, social and political environment
* Law and order to sustain peace and stability in the country
* Cultural attitudes are important in shaping the incentives to work
* State ideology, such as meritocracy in Singapore, also affects the social mobility
* Sustained stability would promote investor confidence, thus leading to influx of investment, which generates economic growth

Positive Impacts of Economic Growth

1. **Higher standard of living**
   * + The main benefit of growth is the increase in amount of goods and service which becomes available for the country’s citizens to enjoy.
     + Economic growth also increases the income of the country allowing citizens to enjoy more of both local and foreign goods. (Raise GDP – Increase in real GDP as long as percentage increase in GDP is greater than percentage increase in price level and population growth)
     + Provides more tax revenue for the government to improve the infrastructures that will raise the convenience and comfort of the citizens
     + Also, higher standard of living can be seen in terms of higher literacy rates and lower mortality rate (death rates)
2. **More even distribution of income**

With more overall income available, government will have the resources to redistribute wealth the poor.

1. **Inflow of investment**

A stable level of economic growth increases firms and consumer confidence which will induce an accelerator effect on the economy. This will encourage more investment which, in turn, induces positive cycle of economic growth.

1. **Higher degree of employment**

Higher level of economic growth will mean a higher level of production, leading to greater labour demand. This is especially significant for a country with large population where growth in the labour intensive industries will produce more employment opportunities for the massive population. (E.g. China, India)

1. **Greater environmental sustainability** 
   * + As people grow richer, they satisfy their basic needs in life and have attained a certain material standard of living.
     + They move on to achieve more the qualitative side of life, becoming concerned about living in a clean environment.

* Growth also allows more resources to be used for the correction or regulation to reduce external costs.

Detrimental Impacts of Economic Growth

1. **Opportunity Costs of Economic Growth**

* To achieve higher economic growth, opportunity cost of higher consumption in the current time period is incurred.
* Firms have to invest more and require financing, so as to raise production
* The finance can come from higher savings or taxes, thus implying that there is a cut in current consumption, which will lower the standard of living in the short run

1. **Structural Unemployment**

* The pursuit of higher economic growth will create greater focus on high-valued industries, such as tourism, to raise the competitiveness of the economy
* As such, there will be technological changes and sectoral adjustments, leading to the mismatch of skills and rise in structural unemployment as some industries rely more on machinery than human labour

1. **Inflation**

* Higher economic growth will lead to higher demand for resources, which will raise the cost of resources, resulting in cost-push inflation
* Also, economic growth will lead to higher level of disposable income, resulting in higher consumption, thus the onset of demand-pull inflation

1. **Uneven Distribution of Income**
   * + Higher economic growth will benefit individuals who are able to adapt to the changing patterns of demand and supply conditions
     + The more skilful individuals will benefit more from higher economic growth as compared to the less skilled individuals

* For example, there is wage inequality for skilled and less skilled workers in a capital-intensive industry
  + - Consequently, there is a widening income inequality, which leads to greater social discontentment that hinders social stability

1. **Depletion of non-renewable resources** 
   * + Higher growth implies higher production, which means that there is greater demand for resources
     + Consequently, greater utilization of resources, particularly non-renewables, will lead to the depletion of resources
     + For instance, coal and oil are non-renewable
2. **Increase in negative externalities**

* Higher output and consumption would place greater pressure on the environment
* Hence, this leads to greater environmental pollution, such as the emission of greenhouse gases that accelerates the effects of global warming

1. **Health-related issues**

* The sustained pursuit of economic growth may lead to higher stress levels
* For instance, workers are required to frequently upgrade existing or acquire new skills, so as to stay relevant in the industries
* Furthermore, economic growth may lead to longer working hours
* Consequently, there may be higher health issues and the fall in productivity
* As such, despite higher living standards, the individuals may rank low on the Happiness Index, seen in developed countries like Japan

Policies to achieve higher economic growth

1. **Expansionary Monetary Policy**
2. **Expansionary Fiscal Policy**
3. **Supply-side Policy**
4. **Infrastructural Development**
5. **Manpower Development**
6. **Trade Policies**
7. **Direct Regulation – Keep wage increments at reasonable level**

**Part D: Economic Indicators to compare Living Standards**

### **Standard of Living (SOL)**

* Measures the average quality of life of a population which includes the material and non-material aspects of life.

### **Quantitative standard of living**

* + - Standard of living measured in term of the purchasing power which will reflect the level of material comforts and this is commonly represented by the **real per capita income**
    - Only real per capita income/GDP can be used as the economic indicator that directly determine the quantitative value of standard of living

### **Qualitative standard of living**

* + - Standard of living measured in term of the quality of life, which will reflect the intangible aspect of comfort of the life of the people and this is commonly represented by the mortality rate, birth rate, level of working hours and stress and the level of externalities in the country consumption and production.

### **Real per capita Income**

* + - Real income of an individual in an economy
    - Formula:

Real per capita income =

Real GDP/GNP

Population figure

**Human Development Index**

* + - Measured the standard of living in term of the progress of the well-being of the individuals
    - Includes:
* Life expectancy at birth
* Adult Literacy
* Adjusted real per capita income
* Infant Mortality Rate

**Consumer Price Index (CPI)**

* + - Measures the change in price of a fixed basket of goods and services commonly purchased by households in a given time period.
    - Uses of CPI (indicator for inflation rate)
* It is used as a deflator in compilation of real economic figures, e.g. real GDP per capital.
* CPI is also used in economics policy formulation and business planning.
* It determines the cost condition which will affect the production capacity. Inflationary cost condition will mean that the production capacity is experiencing rising costs condition which makes economic growth unsustainable. Rising prices will also affect the competitiveness of the economy as the export price level and cost of FDI is affected by the price level.
* Rising price will lower purchasing power 🡪 ↓level of material comfort🡪worsen standard of living

**Gini Coefficient Ratio**

* + - Measures inequality of wealth or income distribution
    - Ratio between 0 and 1, in which 0 represents absolute equality and 1 represents absolute inequality

Limitations of GDP Figures and other indicators

* + - The underground economy especially if the economy has a lot of illegal activities and production like illegal gaming and rental services of pirated CDs
    - Valuation of certain items may differ for certain nations such as the treatment of interest from bonds is considered non-income but interest from banks is considered income and taxable income

**Weak Administrative System**

* + - Obtaining correct and reliable information is difficult as a result of the weak collection system.
    - Danger of double counting due to sub-standard accounting procedure and system
    - The presence of non-marketed items due to subsistence activities or difficulties in monetizing the output

Explain why GDP growth rate can be used as an economic indicator to show that standard of living has improved

Since the real per capita income will be determined by the rise in GDP, it implies that the economy is experiencing actual economic growth, and thus, the rise in economic growth will lead to an improvement in standard of living.

1. **Explain how an increase in GDP will lead to improvement in living standards**
2. The rise in GDP will mean that there is a higher level of real per capita income which implies that the purchasing power of the people has improved. This will lead to a higher level of material comforts and enjoyment and this implies that their standard of living has improved.
3. The increase in GDP would also imply that there is an increase in the total production capacity of goods and services for the citizens and residents to consume, implying that there is a higher level of material comfort.
4. A higher level of national income will enable the nation to attain a higher level of tax revenue and this will provide more funds for government to embark on infrastructural and institutional development. This will make their lives more convenient and comfortable and thus raise the standard of living.
5. **Explain the limitations of GDP as an economic indicator**

Furthermore, if the **percentage increase in price level or population or both are to rise above the percentage increase in GDP, the percentage increase in real per capita income will not rise**, implying that there is no improvement in standard of living.

The increase in national income may not imply that the standard of living of the whole nation has improved since the **increase in real per capita due to a rise in GDP may not take into consideration** the actual distribution of income. This means that not all the citizens will experience rise in real per capita income, indicating an increase in purchasing power.

Also, it is important to **take note of the qualitative aspect** of standard of living such as the stress level and level of externalities. Therefore, qualitative indicators like Human Development Index (HDI) will be needed as **HDI reflects the progress of well-being of the individuals.**